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Breaking Down the Management of MAC Lung Disease

Announcer:
You're listening to *Deep Breaths: Updates from CHEST* on ReachMD. This series is produced in partnership with the American College of CHEST Physicians and is sponsored by Insmed Incorporated.

Here's your host, Dr. David Griffith.

Dr. Griffith:
Mycobacterium avium complex, or MAC lung disease, is becoming more common with annual prevalence increasing 8% per year. The treatment of MAC lung disease requires a comprehensive care team supporting the patient throughout their journey to provide optimal treatment response and quality of life. Although the course of MAC lung disease is frequently indolent, there is accumulating evidence that it can be associated with adverse outcomes, including increased all-cause mortality. Since managing these patients is often complicated, it's essential that clinicians understand the fundamental principles of MAC management and adhere to established guideline-based treatment strategies, which is why we'll be reviewing that today.

Welcome to Deep Breaths: Updates from CHEST, on ReachMD. I'm David Griffith, and joining me are Pulmonary Nurse Practitioner Amy Levinger from NYU Langone Health and Dr. Tim Aksamit, Associate Professor of Pulmonary and Critical Care Medicine at Mayo Clinic.

Miss Levinger and Dr. Aksamit, welcome to both of you.

Ms. Levinger:
Thank you so much, Dr. Griffith. It's my pleasure to be here today.

Dr. Aksamit:
And thank you, Dr. Griffith. My pleasure as well.

Dr. Griffith:
Let's start with you, Dr. Aksamit. What factors do you consider when determining when to treat patients with MAC lung disease?

Dr. Aksamit:
I would share that this is a critically important question to the approach of those with MAC lung disease. The assessment, treatment, and follow-up, longitudinal care of MAC lung disease patients requires a comprehensive approach and should not be rushed. Several elements of patient interactions are required for effective and best patient care. This holds true whether treatment is started or not. Some of those elements include effective communication with your patients and education. This education includes the natural history of NTM lung disease, what's known and unknown. We understand that in some instances we can predict that there may be an increased likelihood for progression if there is fibrocavitary disease, low BMI, or smear-positive disease. As importantly, the education also must include management of risk/benefits. That is to say: Is the benefit to be gained from treatment well worth any potential risks or difficulties with the treatment regimen? And this is a treatable disease. It should be articulated and endpoints and goals of therapy clarified at the front end a priori with the patients so everyone is on the same page.

The treatment approach generally will have an intensity that matches or is proportionate to the amount of disease severity. So, for example, if someone has mild disease, nodular bronchiectatic, but does warrant treatment, we may elect to start out with a thrice-weekly, triple-drug, guideline-based therapy strategy. If there is more advanced disease—for example, fibrocavitary disease, smear-positive in the setting of COPD or other preexisting lung disease—daily therapy of triple-drug therapy is required as well as

consideration of parenteral use of aminoglycoside, generally amikacin. Along with this education also goes intensive amounts of monitoring, not only with bloodwork and eye exams but also hearing tests. The proportionality and cadence of this testing is really dependent on the treatment regimen that's specifically chosen as well as any comorbidities that the patient may have. This also leverages the use of a multidisciplinary team. Pharmacists well-versed in these medications and need for monitoring can be very effective to share information with patients. They can explain potential drug-drug interactions and also guide patients with additional patient materials.

Dr. Griffith:
Thank you, Dr. Aksamit. That is extremely helpful. I wonder if you might elaborate further on the importance of adhering to guidelines-based therapy and also reemphasize a point that I don't think can be emphasized too much, which is the patience and persistence that's required on the part of clinicians frequently when deciding when to start therapy for a MAC patient.

Dr. Aksamit:
Dave, again, this is another great question and an essential component to effective management of patients with NTM lung disease. This is one disease that needs longitudinal care whether treatment has started or not. In some instances the decision to begin treatment is delayed from the initial assessment for several months or a year or longer. Sometimes the therapy would be started initially at the first visit but often times will require longitudinal care.

What sometimes is a misconception is that the NTM that's found is dismissed and patients are lost to follow-up, in which case they come back to the clinic several years later with advanced progressive disease that will not improve even with the start of guideline-based therapies.

Dr. Griffith:
Thank you, Tim. Miss Levinger, once it's determined that treatment is the next best step, what are the goals of management for patients with MAC lung disease?

Ms. Levinger:
So, when initiating MAC treatment, it is important to discuss with patients what the goals are, and the goal of therapy is 12 months of sputum culture negativity while on this therapy. Patients should be educated that MAC is a treatable lung disease and that we would like treatment to control and prevent the progression of disease. We would monitor our patients with respiratory specimens for AFB culture about every 1 to 2 months until the sputum does convert to AFB culture negative and then every 2 to 3 months until therapy is completed. In addition to this we would follow the chest CT scans as well as how these patients are feeling from a symptomatic standpoint.

Patients should be educated that it is possible for the sputum to not convert to culture negativity and/or that the chest CT scans may not improve drastically while on therapy. This is an important aspect to reiterate because you don't want patients to become discouraged when this may happen and that our goal, as stated before, is that treatment would control and/or prevent progression of the disease. The treatment would be individualized on a case-by-case basis as we do always keep in mind quality of life during the antibiotic treatment for these patients, and we don't want our patients feeling more sick and having many side effects while taking these antibiotics.

Dr. Griffith:
Miss Levinger, when you talk about individualization on case-by-case basis, is that referring to adjustments in antibiotic doses and schedules within the framework of the treatment guidelines?

Ms. Levinger:
Yes, following the treatment guidelines is essential in providing optimal outcomes. However, it may be altering and tweaking when or how these patients take the antibiotics, whether it's starting a probiotic if they have some GI upset and/or if patients may need to take the antibiotics with food rather than on an empty stomach as they may tolerate that better.

Dr. Griffith:
For those just tuning in, you're listening to Deep Breaths: Updates from CHEST, on ReachMD. I'm Dr. David Griffith, and today I'm speaking with Pulmonary Nurse Practitioner Amy Levinger and Dr. Tim Aksamit about treatment strategies for patients with mycobacterium avium complex, or MAC lung disease.

Well, let's pick up our discussion again with you, Dr. Aksamit. While managing patients with MAC lung disease, how are you monitoring disease activity? And what challenges might cause you to consider changing the treatment regimen?

Dr. Aksamit:

This question of how to best monitor disease activity in my opinion is similar to the initial diagnostic criteria; that is it's a compilation of an assessment of clinical symptoms, sputum microbiology and radiographic abnormalities. In most instances we expect patients to feel better even if there are potential side effects from some of the medication, although we would expect their symptoms to improve, their radiographic abnormalities to stabilize, and then have some improvement in their microbiology and potentially sputum conversion.

The specific intensity and frequency of monitoring including bloodwork, eye exams and audiology monitoring done are really dependent upon what the treatment regimen is and whether or not there are any comorbidities that may increase relative side effects, such as bronchiectasis, sinus disease, reflux disease, and if those are taken care of, often times symptoms will improve independent of the response to MAC lung disease treatment.

Dr. Griffith:
Miss Levinger, knowing that every patient is different, what are some of the more frequently reported side effects to medications for MAC lung disease, and how do you manage them?

Ms. Levinger:
Some of the more important side effects we discuss are optic neuritis that would be due to ethambutol. And in order to manage this, we have our patients have visual acuity and color vision monitoring every 1 to 2 months while on therapy. In addition, the patient should be educated that if they do notice any change in vision, they should stop the antibiotics and notify their clinician as well as their eye doctor. Further, hearing loss, which would be due to the macrolides, and in order to manage this, we do have our patients get routine hearing tests about every 3 months and/or with any change in symptoms that may occur.

Hepatotoxicity could be a side effect due to rifampin and macrolides, and we manage this by getting routine lab tests on our patients. In the beginning while starting treatment, it would be every month, and then if the lab work does continue to be stable, we could space this out and do about every 2 to 3 months.

Dr. Griffith:
Dr. Aksamit, could you describe refractory MAC lung disease, how to identify it, for instance, and how to approach it therapeutically?

Dr. Aksamit:
When treatment is started, we generally will collect on a monthly or every-other-month basis additional sputum or microbiology if available. If sputum has not converted from culture positivity to negative by 6 months while on guideline-based therapy, we assign a label of refractory MAC lung disease. I would share that there is a caveat in that those individuals with fibrocavitary disease and larger disease burdens may take a bit longer to convert their sputum even on daily therapy with or without a parenteral agent.

In most instances we would generally make an assessment whether there is any development of macrolide and/or amikacin resistance and whether or not this is still susceptible to a macrolide, assuming that it was at the beginning of our guideline-based therapy. For those individuals with refractory lung disease, this becomes a more complicated approach and often requires referral to a specialist with expertise in approaching patients with refractory MAC lung disease in a specialized clinic.

Dr. Griffith:
Before we close, Miss Levinger, I'll give you the final word. What's your key takeaway on MAC lung disease?

Ms. Levinger:
Well, I would like to reiterate again that it is important for patients to be educated that MAC lung disease is a treatable disease. And as Dr. Aksamit said, in my experience as well, once patients are on these antibiotics and they are closely monitored and frequent reassurance if they have any questions, these patients do start feeling better and are ultimately able to live their quality of life.

Dr. Griffith:
Well, unfortunately, that's all the time we have for today, so I want to thank my guests for joining me to discuss the treatment of patients with mycobacterium avium complex, or MAC lung disease.

Miss Levinger, Dr. Aksamit, it was great having you both on the program. Thank you.

Ms. Levinger:
Thank you so much for having me.

Dr. Aksamit:
And glad to be with you, Dr. Griffith. Miss Levinger, thank you.

Announcer:
This episode of *Deep Breaths: Updates from CHEST* was produced in partnership with the American College of Chest Physicians and

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